In cooperation with local hosts and co-organizers

National Academy of Engineering ♦ National Academies' Government-University-Industry Research Roundtable ♦ National Academies' University-Industry Demonstration Partnership ♦ University of California, Irvine ♦ NASA Jet Propulsion Laboratory

Workshop on Building the National Network for Manufacturing Innovation

Arnold and Mabel Beckman Center of the National Academies of Sciences and Engineering

Irvine, California ♦ September 27, 2012

Strategies for Sustainable Operations

TOP ISSUES	REMARKS
Identifying successful co-investment models	1 – flexibility - non traditional approach allowed
	2 – flexibility with IP for revenue stream
	3 – balancing access of large and small companies
Best Practices for Building on Existing Programs	regional membership with national access – center of the universe for customer
How to Measure Success	Jobs added and crated in the area; new products and patents; accelerated speed to market; value added – what we launched is better with this resource; number of people educated; number of international companies – revenue and market share.

Institute Structure and Governance

TOP ISSUES	REMARKS
What business models would be effective for the Institutes to manage business decisions?	Models for consideration: Neil Gershenfeld's Fab Lab (Creating a global network) Creating a network worldwide for sharing education topics for MIT. Decentralizing and creating an open source for sites to be able to create standardized processes for best practices. Partnering with other members in nearby networks? Hosting a center at the University Partnering with other members in nearby networks. Fee for Service Model Industry Panel, Academic Panel, Government to approve activity and prioritization In Tech Shop model Sema Tech Model Limit regulations to encourage innovation.
How could a network of institutes optimally operate?	Options Discussed: Hub to document and share protocols, resources, human capital, procedures, and communications. Used as a Knowledge tool library

Institute Structure and Governance

TOP ISSUES	REMARKS
What membership participation structure should be effective for the Institutes, such as financial and intellectual property obligations, access and licensing?	Models discussed: Tiered membership structure Fee for service membership to create style of division. Chinese menu type options Extend memberships to stakeholders Shared IP rights between participating entities in institute with overall governance by BOD
What measures could assess effectiveness of Network structure and governance?	Measures Discussed: Economic development and manufacturing job creation Pre-assessment/post-assessments depending on process of project to collect data (self assessment tool) Establish education strategy to encourage children to join the industry Deposit membership fee and not return it until assessment has been completed Engagement with the industry. Reinvestment into Institute and membership growth Ability to attract outside capital and investment

Institute Structure and Governance

TOP ISSUES	REMARKS
What Governance model would be effective for the Institutes to manage the governance decisions?	Models for consideration: Stakeholders should not have day to day responsibilities Divisional leaders responsible for making the decisions. As an official decision. Hold stakeholders accountable for decisions. More cooperative structure Small companies need to be represented. “Hub and Spoke” Model: General BOD that oversees industry-related subgroups that manages/supervises industry specific activities

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Education & Workforce Development

TOP ISSUES	REMARKS
On-distance learning	Increase access. Increase on-line distance modeling that count for post-secondary credit, or that are recognized as valued in the industry. On-line learning modules that pair students to the different kind of programs. On-line curricula that they could take programs/classes at any time, not necessarily in a structured environment.
Student and Business Engagement	Hands-on teaching and learning – Business leaders to the classroom – start at a younger level-- Bring in social network—science channel—Tube.
Lack of Equipment	Partner with business to utilize relevant equipment for the industry.

Education & Workforce Development

TOP ISSUES	REMARKS
Education Accessibility	- Getting students to easy access programs - Online programs - Certificates - Student participation - Resources shared - Learning at their own pace - Introducing students to a wide range of activities: field trips, 3-day programs, lego programs, etc. - Simulated learning environment - Lack of vocational training - Bring back high school programs
Manufacturing Image	- Getting students interested in manufacturing - National campaign, introduce and re-label manufacturing - Bridging the gap between education and industry - After-school programs

Education & Workforce Development

TOP ISSUES	REMARKS
Advanced Manufacturers to Linked-In System for training teachers Enabling student creativity	- Programs are disappearing from the schools - Loss of instructional capital - Professors are disappearing from universities that have manufacturing degrees - System for training teachers - Collaboration methods with other manufacturing groups - College students working with high-school students - Developing alternative schools - Get students to work on real-world problems - Base for innovation

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Technologies with Broad Impact

Top Issues	Remarks
Should IMI should be technology centric?	"Why must we select technologies?" "Why not let proposers makea compelling case for their ecosystem?"
Criteria that measure value across a spectrum	Return on Investment Address National or Regional needs
Focus on Markets	Energy Communication Health Transportation Food Production Defense and Security LED Lights

Technologies with Broad Impact

Top Issues	Remarks
Ecosystem	Look at the interacting pieces and make a case for synergistic added value
Proposal Evaluation	.
Will the institutes be stovepipes that don't address a wide swath of problems?	.
Does the technology create jobs and career development paths?	.
Wow Factor.	Emphasis on the state of the art.

Technologies with Broad Impact

Top Issues	Remarks
Clearinghouse to provide direction and assistance	.
IP Generation	.
Translating university research for manufacturing.	.
Incubator	Place to try out new ideas with expert help
Survey Manufacturers	Where is the pain? What developments will help manufacturers produce better?